

**Work Order ID 58816**

Page 1

Wednesday, May 19, 2010 9:27:40 AM

Item ID: D350-636-014

Accept



Setup Start



Revision ID:

Item Name: Skidtube RH

Stop



Start Date: 5/19/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 5/26/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan:

Date: 10-5-19

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D2750	Rev F								

100

0.00



DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy blue file and type labels per PPP D350-636-014 CHG 005

S 10/06/15

HJ for BG 10/06/15

B 58816

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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Stop



Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Draw  
Number

Draw  
Rev.

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

110

0.00



Skidtubes

Skidtubes

Memo

0.00

Skidtubes

1- Mark cut line on aft end of D2600-3-Bent using Jig DT 8150. Cut to length as per Dwg D2750. Deburr end

2-Drill pilot holes as per Dwg D2750 sheet 7 (D2750-4 details).Drill using drill Jig DT8150 & DT8864 .

3- Mark fwd end for cutting using Drill Jig DT 8150 & DT8864 and cut as per dwg D2750. Deburr.

4- Drill fwd step holes using DT9616. Ensure proper positioning.

5-Drill pilot holes for blade fitting bolt using DT8983. Open to 0.500".

6- locate DT8929 off of blade fitting holes and drill pilot holes for blade fitting.

7-Open up holes for section BE-BE to 0.375 (2 holes per side) and blade fitting location holes to 0.500" (total of 4 holes per side) as per dwg D2750. Open holes for ground handling and detail A-B to 0.500" (8 holes per side)

8-Drill pilot holes for wearplates as per Dwg D2750 using DT8108 and open to 0.297"

9-Open up holes of Detail A-A to 0.297" (total of 2 holes per side)

10-Weld D2744 Cap as per Dwg D2750 and QSI 004.Fill grooves in bend left from bending as per QSI 004

A/R ☐ ☐ Aluminum Rod

☐ M112860

BE 10/05/27

10-5-27

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Run Start



Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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11-Grind welds flush as per Dwg D2750

12- scribe batch #.

M 12/5/31

120



QC

Quality Control

QC10- Inspect visual per QSI004- ground welds

0.00

Memo

0.00

8/10/31

130



QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

Memo

0.00

8/10/31

⑦

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run HoursDraw  
NumberDraw  
Rev.Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

140

Chemical Conversion Coat per QSI005 4.1

0.00



HandFinish

Memo

0.00

Hand Finishing

11/10/5/31

150

QC3- Inspect Part Finish

0.00



QC

Memo

0.00

Quality Control

10-5-31

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Stop



Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Draw  
Number

Draw  
Rev.

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

160

0.00



Skidtubes

Skidtubes

Memo

0.00

Skidtubes

1-Open up holes section BE-BE 0.500" (4 per side) as per dwg D2750

2-Open holes section BC-BC 0.3125" (4 per side)

3-Open up holes of Detail AB and ground handling to 0.625" (total of 8 holes per side) as per dwg D2750.

4-Chamfer holes of section BE-BE, BC-BC, AB and ground handling (welding instructions on sheet 11)

5-Deburr and blow out all chips from inside of tube. Prepare tube for welding, remove alodine as required.

6-Bond web D2739 in place as per QSI 015

A/R ☐☐☐ Sikaflex-291 batch: 1113435 ☐☐☐

exp. date: 10/5/31

7- Weld spacers D3490-1, D3490-5 and D2743 as per dwg D2750 & QSI004 (welding instructions on sheet 11)

A/R ☐☐☐ Aluminum Rod batch: 1114242

8-Grind welds flush as per Dwg D2750

9-Spot face ground handling holes (total of 4 places per side) as per dwg D2750

10-Deburr holes

M 10/5/31

BE 10/06/03

BE 10/06/04

W/O:		WORK ORDER CHANGES					
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QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop

Sequence ID/  
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DescriptionSet Up/  
Run HoursDraw  
NumberDraw  
Rev.Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

170

QC10- Inspect visual per QSI004- ground welds

0.00



0.00 S 10/06/04

QC

Memo

Quality Control

180

QC5- Inspect part completeness to step on W/O

0.00



0.00 S 10/06/04

QC

Memo

Quality Control



190

Pressure Wash per QSI005 4.3

0.00



0.00

HandFinish

Memo

Hand Finishing

Re-alodine tube as per QSI 005 section 4.1.2.1 do not acid etch.



Bf 10-6-8.

W/O:		WORK ORDER CHANGES					
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Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run HoursDraw  
NumberDraw  
Rev.Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

200



Powdercoat

Powder Coating

White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum

0.00

11114841

Memo

START TIME: 1:30pm  
OVEN TEMPERATURE: 320°F  
FINISH TIME: 2:00pm

0.00

=&gt; M 10/06/06

1 0/

210



QC

Quality Control

QC3- Inspect Part Finish

0.00

Memo

Inspect for foreign object per QSI 024

0.00

M 10 06 11 ①

W/O:		WORK ORDER CHANGES					
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Run Start

Stop

Sequence ID/  
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DescriptionSet Up/  
Run HoursDraw  
NumberDraw  
Rev.Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

230

0.00



HandFinish

HandFinishing

Memo

0.00

Hand Finishing

1-Install inserts as per dwg D2750

2-assemble o'ring as per dwg D3492 and apply o'ring lube  
A/R 55-o'ring lube batch: 1141893-Assemble tube hardware as per dwg D2750 sika flex batch: 113435

4-Inspect For Foreign Objects

5-Spray inside of tube with "LPS-3" batch: N/A MM 10.06.11

6-Install blade fitting D3488-041, wearshoe

SIKA FLEX 241

BATCH: 113435EXP DATE: 10/11

7-assemble o'ring to plug as per dwg D3492 and apply o'ring lube

A/R 55-o'ring lube batch: 1141898-Coat all exposed fasteners with "LPS Procyon" batch: 104251

MM 10 06 11 ①

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Process Plan:

Date:

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start

Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run HoursDraw  
NumberDraw  
Rev.Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

240

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

250

Pick Kit

0.00



Packaging

Memo

0.00

Packaging

260

QC4- 100% Inspect kits for completeness

0.00



QC

Memo

0.00

Quality Control



8/10/06/14

40

10-6-15 SP

40

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Run Start



Stop

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Run HoursDraw  
NumberDraw  
Rev.Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

270



Packaging

0.00

Packaging

Memo

0.00

Packaging

Package as per PPP D350-636-014

*RGH**10/06/16*

280



QC21- Final Inspection - Work Order Release

0.00

QC

Memo

0.00

Quality Control

*10/06/17**mf**10-6-14*

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# Picklist Print

Wednesday, May 19, 2010 9:27:44 AM

Page 1

Work Order ID: 58816

Parent Item: D350-636-014

Parent Item Name: Skidtube RH

Comments: IPP Rev:H 02.09.25 Rearranged procedure steps KJ  
IPP Rev:I 05.12.08 Rearranged procedure steps EC  
IPP Rev:J 06.03.30 Per rev. D EC  
IPP Rev:L 07-07-28 Added SS Wearplates(Rev E) JLM Verified By:EC

Start Date: 5/19/2010

Required Date: 5/26/2010

Start Qty: 1.00

Required Qty: 1.00

D2600-3-BENT

Manufactured No

110 Each

2.0000

1



Extrusion Bent

Location

Loc Qty

Loc Code

LG

2

55462

1

57538

1

D2739

Manufactured No

160 Each

1.0000

1



350 I Beam

Location

Loc Qty

Loc Code

LG

1

57948

1

D2743

Manufactured No

160 Each

114.0000

8



Crossbolt Spacer

Location

Loc Qty

Loc Code

LG

114

50281

10

52310

24

57953

80

D2744

Manufactured No

160 Each

28.0000

1



Cap

Location

Loc Qty

Loc Code

LG

28

47488

10

51922

18

358903

DP 10-5-27

358904 (D M 1/4/31)

B BE 10/06/03

1 BE 10/05/27

W/O:		WORK ORDER CHANGES					
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 IPP Rev:I 05.12.08 Rearranged procedure steps EC  
 IPP Rev:J 06.03.30 Per rev. D EC  
 IPP Rev:L 07-07-28 Added SS Wearplates(Rev E) JLM Verified By:EC

Start Date: 5/19/2010

Required Date: 5/26/2010

Start Qty: 1.00

Required Qty: 1.00

D3490-1 Manufactured No 160 Each 25.0000 4



Cross Bolt Spacer

Location

Loc Qty

Loc Code

LG

25

57723

25

D3490-5

Manufactured No

160 Each

46.0000

4



Cross Bolt Spacer

Location

Loc Qty

Loc Code

LG

46

43015

6

46490

40

ALS4-1032-225

Purchased No

230 Each

7,062.000

38



Insert

Location

Loc Qty

Loc Code

PK011

7062

110768

7062

85922B (x4) BE 10/06/03

4 BE 10/06/03

NW 10-06-11

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 IPP Rev:I05.12.08Rearranged procedure stepsEC  
 IPP Rev:J06.03.30Per rev. D EC  
 IPP Rev:L 07-07-28 Added SS Wearplates(Rev E) JLM Verified By:EC

Start Date: 5/19/2010

Required Date: 5/26/2010

Start Qty: 1.00

Required Qty: 1.00

AN3C5A Purchased No 230 Each 453.0000 34



Bolt

B# 114808

Location	Loc Qty	Loc Code
ST350	325	
114330	125	
114523	200	
ST351	128	
113121	10	
114108	45	
114181	73	

*MM 10.06.11*

AN3C6A Purchased No 230 Each 565.0000 4



BOLT

Location	Loc Qty	Loc Code
ST351	565	
<u>111982</u>	565	

*MM 10.06.11*

AN6C44A Purchased No 230 Each 101.0000 4



BOLT

Location	Loc Qty	Loc Code
FG	2	
103964	2	
ST344	99	
111649	2	
114455	47	
<u>114653</u>	50	

*MM 10.06.11*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

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Page 4

Work Order ID: 58816

Parent Item: D350-636-014

Parent Item Name: Skidtube RH

Comments: IPP Rev:H 02.09.25 Rearranged procedure steps KJ  
IPP Rev:I 05.12.08 Rearranged procedure steps EC  
IPP Rev:J 06.03.30 Per rev. D EC  
IPP Rev:L 07-07-28 Added SS Wearplates(Rev E) JLM Verified By:EC

Start Date: 5/19/2010

Required Date: 5/26/2010

Start Qty: 1.00

Required Qty: 1.00

AN8C35A Purchased No 230 Each 56.0000 1



BOLT

Location Loc Qty Loc Code

FP 6  
110847 6  
ST346 50  
114442 50

Purchased No 230 Each 0.0000 38



washer

AN960C816L



WASHER

Purchased No 230 Each 106.0000 1

Location Loc Qty Loc Code

ST348 106  
110584 100  
111424 6

Manufactured No 230 Each 146.0000 8

D2745



Bushing

Location Loc Qty Loc Code

ST023 146  
52311 69  
57914 77

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

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Wednesday, May 19, 2010 9:27:44 AM

Page 5

Work Order ID: 58816

Parent Item: D350-636-014

Parent Item Name: Skidtube RH

Comments: IPP Rev:H 02.09.25 Rearranged procedure steps KJ  
IPP Rev:I 05.12.08 Rearranged procedure steps EC  
IPP Rev:J 06.03.30 Per rev. D EC  
IPP Rev:L 07-07-28 Added SS Wearplates(Rev E) JLM Verified By:EC

Start Date: 5/19/2010

Required Date: 5/26/2010

Start Qty: 1.00

Required Qty: 1.00

D3488-042 Manufactured No 230 Each 19.0000 1



Blade Fitting Assembly, RH

Location Loc Qty Loc Code

FP008 19

53918 19

D3492-1 Manufactured No 230 Each 58.0000 8



Plug

Location Loc Qty Loc Code

FP 58

47658 24

48274 34

replaces D3492-041

D3492-5 Manufactured No 230 Each 39.0000 8



Plug

Location Loc Qty Loc Code

FP 39

47659 39

replaces D3492-045

D3535-25 Manufactured No 230 Each 13.0000 1



Wearshoe

Location Loc Qty Loc Code

FP18 13

57943 13

B# 59150

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Page 5

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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Wednesday, May 19, 2010 9:27:44 AM

Page 6

Work Order ID: 58816

Parent Item: D350-636-014

Parent Item Name: Skidtube RH

Comments: IPP Rev:H 02.09.25 Rearranged procedure steps KJ  
IPP Rev:I 05.12.08 Rearranged procedure steps EC  
IPP Rev:J 06.03.30 Per rev. D EC  
IPP Rev:L 07-07-28 Added SS Wearplates(Rev E) JLM Verified By:EC

Start Date: 5/19/2010

Required Date: 5/26/2010

Start Qty: 1.00

Required Qty: 1.00

D3536-25

Manufactured No

230

Each

6.0000

1



Gasket

B# 58820

Location

Loc Qty

Loc Code

FP12

6

57944

6

D3537-1

Manufactured No

230

Each

24.0000

3



Wearpad

B# 58178

Location

Loc Qty

Loc Code

FP

1

55465

1

FP17

23

57256

23

D3631-1

Manufactured No

230

Each

206.0000

8



Washer

B# 54388

Location

Loc Qty

Loc Code

ST076

206

52693

206

D3672-1

Manufactured No

230

Each

1,375.000

4



Phenolic Washer

Location

Loc Qty

Loc Code

ST077

1375

51674

375

52505

1000

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Page 6

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



# Picklist Print

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Page 7

Work Order ID: 58816

Parent Item: D350-636-014

Parent Item Name: Skidtube RH

Comments: IPP Rev:H 02.09.25 Rearranged procedure steps KJ  
 IPP Rev:I 05.12.08 Rearranged procedure steps EC  
 IPP Rev:J 06.03.30 Per rev. D EC  
 IPP Rev:L 07-07-28 Added SS Wearplates(Rev E) JLM Verified By:EC

Start Date: 5/19/2010

Required Date: 5/26/2010

Start Qty: 1.00

Required Qty: 1.00

D3791-1 Manufactured No 230 Each 5.0000 1



Wearplate

B# 58906

Location Loc Qty Loc Code

FP17 56299 5

5

D3793-1 Manufactured No 230 Each 10.0000 1



Wearshoe

B# 59151

Location Loc Qty Loc Code

FP18 56300 10

1

57945 9

D3793-3 Manufactured No 230 Each 11.0000 1



Wearshoe

B# 59152

Location Loc Qty Loc Code

FP19 57947 11

11

D3794-1 Manufactured No 230 Each 32.0000 1



Gasket

Location Loc Qty Loc Code

FP010 57942 26

26

FP014 57537 6

6

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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Page 8

Work Order ID: 58816



Parent Item: D350-636-014



Parent Item Name: Skidtube RH

Start Date: 5/19/2010

Required Date: 5/26/2010

Comments:

IPP Rev:H 02.09.25 Rearranged procedure steps KJ

IPP Rev:I 05.12.08 Rearranged procedure steps EC

IPP Rev:J 06.03.30 Per rev. D EC

IPP Rev:L 07-07-28 Added SS Wearplates(Rev E) JLM Verified By:EC

Start Qty: 1.00

Required Qty: 1.00

D3794-3

Manufactured No

230

Each

14.0000

1



Gasket

B# 59153

Location

Loc Qty

Loc Code

FP18

14

56066

14

MS21043-6

Purchased

No

230

Each

826.0000

4



NUT

MM 10.06.11

Location

Loc Qty

Loc Code

ST301

826

112314

826

MS21083C8

Purchased

No

230

Each

41.0000

1



NUT

MM 10.06.11

Location

Loc Qty

Loc Code

ST303

41

113845

11

114523

30

NAS1611-005

Purchased

No

230

Each

309.0000

1



O-RING

MM 10.06.11

Location

Loc Qty

Loc Code

FP002

309

106099

209

114220

100

MM 10.06.11

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Page 8

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

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Page 9

Work Order ID: 58816



Parent Item: D350-636-014



Parent Item Name: Skidtube RH

Start Date: 5/19/2010

Required Date: 5/26/2010

Comments:

IPP Rev:H 02.09.25 Rearranged procedure steps KJ

IPP Rev:I 05.12.08 Rearranged procedure steps EC

IPP Rev:J 06.03.30 Per rev. D EC

IPP Rev:L 07-07-28 Added SS Wearplates(Rev E) JLM Verified By:EC

Start Qty: 1.00

Required Qty: 1.00

NAS1611-010

Purchased

No

230

Each

306.0000

1



O-RING

Location

Loc Qty

Loc Code

FP

306

110715

100

110915

230

206

250

Each

113.0000

2

AN8C21A

Purchased

No



BOLT

Location

Loc Qty

Loc Code

ST345

113

111605

23

113558

50

114653

40

Purchased

No

250

Each

106.0000

1

AN960C816L



WASHER

Location

Loc Qty

Loc Code

ST348

106

110584

100

111424

6

Manufactured

No

250

Each

28.0000

1

D2741



Blade, 350 Skidtube

Location

Loc Qty

Loc Code

ST466

28

55905

28

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

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Work Order ID: 58816



Parent Item: D350-636-014



Parent Item Name: Skidtube RH

Start Date: 5/19/2010

Required Date: 5/26/2010

Comments: IPP Rev:H 02.09.25 Rearranged procedure steps KJ  
 IPP Rev:I 05.12.08 Rearranged procedure steps EC  
 IPP Rev:J 06.03.30 Per rev. D EC  
 IPP Rev:L 07-07-28 Added SS Wearplates(Rev E) JLM Verified By:EC

Start Qty: 1.00

Required Qty: 1.00

D3493-1 Manufactured No 250 Each 33.0000 2  
 Washer  
 10-6-15

Location Loc Qty Loc Code

ST065 33  
 57825 33

D3672-13 Purchased No 250 Each 894.0000 2  
 Phenolic Washer  
 10-6-15

Location Loc Qty Loc Code

ST077 894  
 54363 894

MS21083C8 Purchased No 250 Each 41.0000 1  
 NUT  
 M114934 10-6-15

Location Loc Qty Loc Code

ST303 41  
 113845 11  
 114523 30

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



QTY -041	QTY -042	QTY -043	QTY -044	PART NUMBER	DESCRIPTION
X				D2750-041	350 SKIDTUBE ASSEMBLY, LH
	X			D2750-042	350 SKIDTUBE ASSEMBLY, RH
		X		D2750-043	350 SKIDTUBE ASSEMBLY, LH
			X	D2750-044	350 SKIDTUBE ASSEMBLY, RH
1	1	1	1	D2739	WEB
8	8	8	8	D2743	SPACER
1	1	1	1	D2744	CAP
8	8	8	8	D2745	BUSHING
1				D2750-1	SKIDTUBE WELDMENT, LH
	1			D2750-2	SKIDTUBE WELDMENT, RH
		1		D2750-3	SKIDTUBE WELDMENT, LH
			1	D2750-4	SKIDTUBE WELDMENT, RH
1		1		D3488-041	BLADE FITTING, LH
	1			D3488-042	BLADE FITTING, RH
4	4	4	4	D3490-1	SPACER
4	4			D3490-3	SPACER
		4	4	D3490-5	SPACER
8	8	8	8	D3492-041	PLUG ASSEMBLY
8	8			D3492-043	PLUG ASSEMBLY
		8	8	D3492-045	PLUG ASSEMBLY
1	1	1	1	D3535-25	WEARSHOE
1	1	1	1	D3536-25	GASKET
3	3	3	3	D3537-1	WEARPAD
8	8	8	8	D3631-1	WASHER
1	1	1	1	D3791-1	WEARPLATE
1	1	1	1	D3793-1	WEARSHOE
1	1	1	1	D3793-3	WEARSHOE
1	1	1	1	D3794-1	GASKET
1	1	1	1	D3794-3	GASKET
38	38	38	38	ALS4-1032-225	INSERT (OR ALS7-1032-225, AKS4-1032-225, AELS-1032-225)
34	34	34	34	AN3C5A	BOLT
4	4	4	4	AN3C6A	BOLT
4	4	4	4	AN6C44A	BOLT
1	1	1	1	AN8C35A	BOLT
38	38	38	38	AN960C10L	WASHER
1	1	1	1	AN960C816L	WASHER
4	4	4	4	MS21043-6	NUT
1	1	1	1	MS21083C8	NUT
4	4	4	4	NAS1515H3L	WASHER

## GENERAL NOTES:

- MATERIAL: MAKE D2750-1/-2/-3/-4 FROM D2600-3 EXTRUSION (INITIAL LENGTH = 120.0).
- FINISH:  
ACID ETCH, ALONDE ASSEMBLY PER DART QSI 005 4.1 PRIOR TO INSTALLING D2739 WEB.  
POWDER COAT WHITE (REF. 4.3.5.1) PER DART QSI 005 4.3  
BLACK ANTI-SKID PAINT AS INDICATED TO 1.0 ABOVE SKIDTUBE CENTER-LINE PER DART 005 4.4 (OPTIONAL).
- TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- UNITS: INCHES UNLESS OTHERWISE NOTED
- BREAK SHARP EDGES: N/A
- IDENTIFICATION: N/A
- WEIGHT: D2750-041/-042/-043/-044 = 26.5 LBS
- WELD PER DART QSI 004
- INSTALL ALS4-1032-225 INSERTS AFTER FINISH AS INDICATED. DRILL 'F' SIZE HOLES ( $\phi 0.297$ ) FOR WEARSHOE INSERTS
- FINAL CONFIGURATION SHOULD HAVE THE FOLLOWING MINIMUM MECHANICAL PROPERTIES:  
MINIMUM YIELD TENSILE STRENGTH = 35 KSI  
MINIMUM ULTIMATE TENSILE STRENGTH = 38 KSI
- SPRAY INSIDE OF TUBE WITH A COAT OF 'LPS LABORATORIES "LPS-3" AFTER FINISH AND AFTER INSTALLATION OF INSERTS.  
COAT ALL EXPOSED FASTENERS WITH 'LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF  
POWDER COATING WITH MEK DEGREASER
- SPACER AND PLUG INSTALLED SAME AS SECTION A-J EXCEPT HORIZONTAL
- SPACER AND PLUG INSTALLED SAME AS SECTION A-P EXCEPT HORIZONTAL

SHOP COPY  
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UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER

NO. 58814  
BS10-5-19

RELEASED

F	INCORPORATE DSI 9413; QTY (3) D3537-1 WAS QTY (5) (ZN C8-1); D3791-1/3 REPLACES D3536-13/35 (ZN C8-1); D3794-1/3 REPLACES D3536-13/35 (ZN B8-1); ADD D3791-1 (ZN C8-1); WEARSHOE HOLES UNDER FWD/AST SADDLE REMOVED (8 PL). WEARSHOE HARDWARE QTY UPDATED (ZN B8-1); D3488-041/-042 HARDWARE UPDATED (ZN C1-8, 9, 10, 11); ADD NOTE 12 AND 13 (ZN A6-1); REASON: REF. NCR 08-043	PH	08.07.16
E	CHANGE TO STAINLESS STEEL WEARPLATES; ADD RUBBER GASKETS, CHANGE INSERTS, ADD D3631-1; REMOVE QTY (38) NAS1515H3L; REMOVE QTY (10) NAS1515H8L; REMOVE D2741; QTY (2) AN960C816; REMOVE QTY (2) MS21083C8	CB	07.05.17
D	ADD HOLES AND SPACERS FOR APICAL FLOATS; INCORPORATE DEO 9133/8157	PH	06.01.05
C	ADD D2750-3/D2750-4; INCORPORATE D2738 AND D2740	CP	98.11.18
B	CHANGE MS24694-S293 TO AN8-16A	CP	98.09.01
A	NEW ISSUE	DS	98.04.16
REV.	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	08.07.16		
<div style="text-align: center;"> <b>DART AEROSPACE USA, INC.</b>              PORT HADLOCK, WA         </div>			
DRAWING NO.		REV. F	
D2750		SHEET 1 OF 11	
TITLE		SCALE	
350 SKIDTUBE ASSEMBLY		NTS	
<div style="text-align: center;"> <small>                         COPYRIGHT © 1998 BY DART AEROSPACE USA, INC.                          THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS                          NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT                          WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.                     </small> </div>			

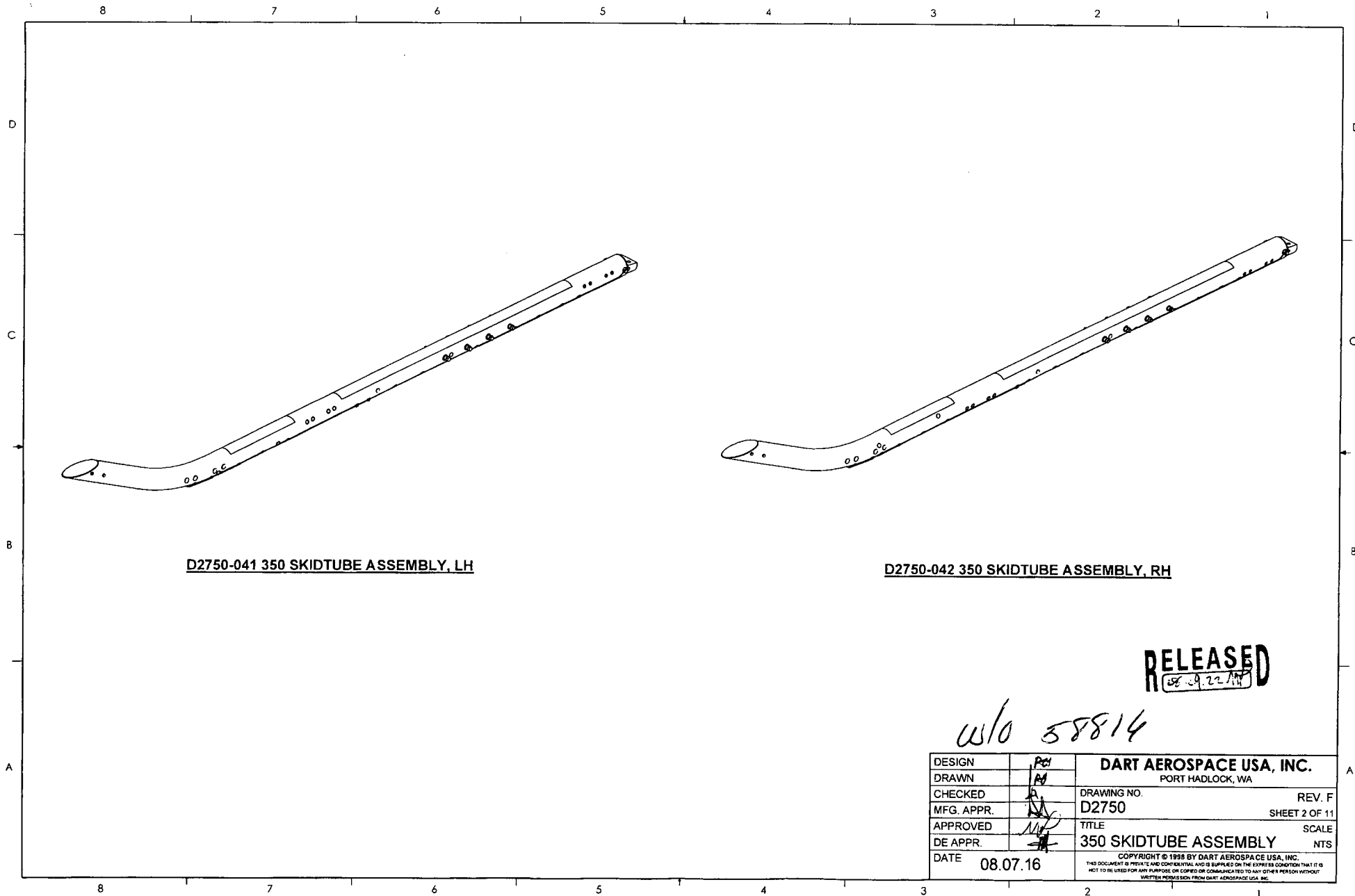
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



**RELEASED**  
 08-09-22-11

W/O 58814

DESIGN	PC1	<b>DART AEROSPACE USA, INC.</b>	
DRAWN	AM	PORT HADLOCK, WA	
CHECKED	AM	DRAWING NO.	REV. F
MFG. APPR.	AM	D2750	SHEET 2 OF 11
APPROVED	AM	TITLE	SCALE
DE APPR.	AM	350 SKIDTUBE ASSEMBLY	NTS
DATE	08.07.16	<small>COPYRIGHT © 1998 BY DART AEROSPACE USA, INC.</small> <small>THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.</small>	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

D2750-043 350 SKIDTUBE ASSEMBLY, LH

D2750-044 350 SKIDTUBE ASSEMBLY, RH

**RELEASED**  
68-9-22/11

*W/O 58816*

DESIGN	PD	<b>DART AEROSPACE USA, INC.</b>	
DRAWN	PD	PORT HADLOCK, WA	
CHECKED	J	DRAWING NO.	REV. F
MFG. APPR.	NA	D2750	SHEET 3 OF 11
APPROVED	NA	TITLE	SCALE
DE APPR.	NA	350 SKIDTUBE ASSEMBLY	NTS
DATE	08.07.16	<small>COPYRIGHT © 1998 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR DISSEMINATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.</small>	

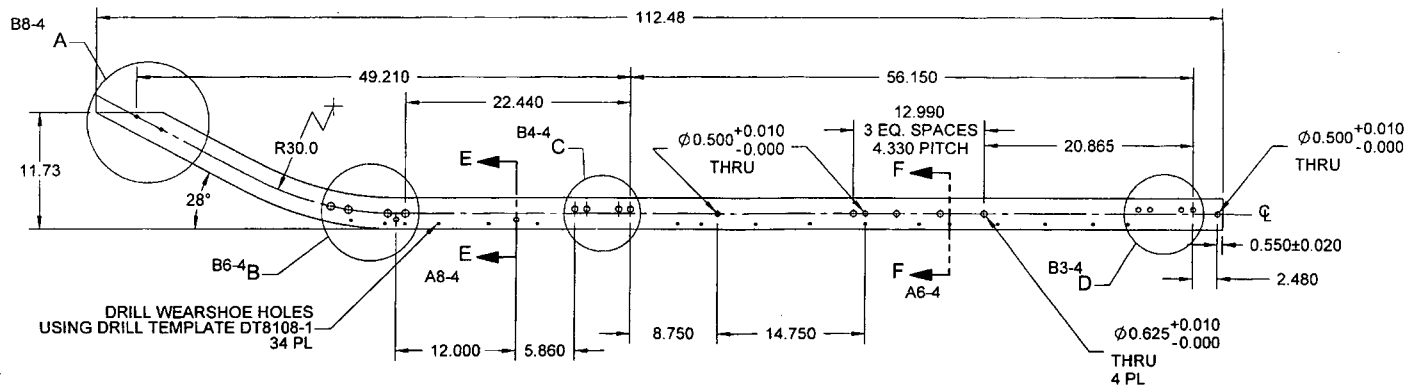
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

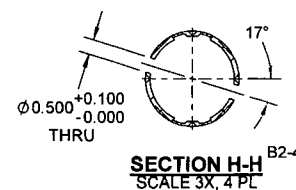
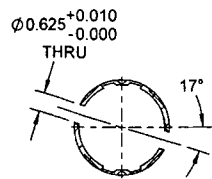
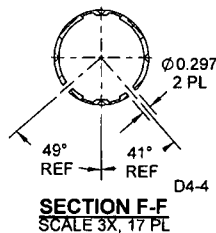
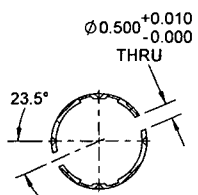
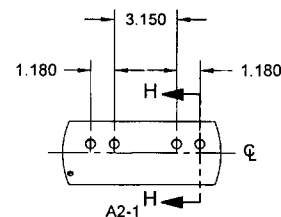
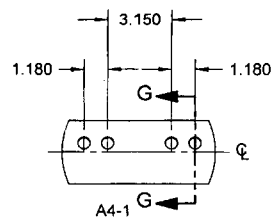
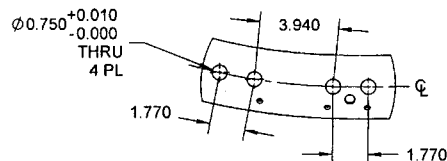
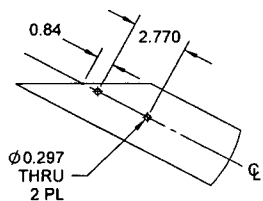
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NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



**D2750-1 LH SKIDTUBE**



**RELEASED**

W/O 58814

DESIGN	JP	<b>DART AEROSPACE USA, INC.</b>	
DRAWN	JP	PORT HADLOCK, WA	
CHECKED		DRAWING NO.	REV. F
MFG. APPR.		D2750	SHEET 4 OF 11
APPROVED		TITLE	SCALE
DE APPR.		350 SKIDTUBE ASSEMBLY	NTS
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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

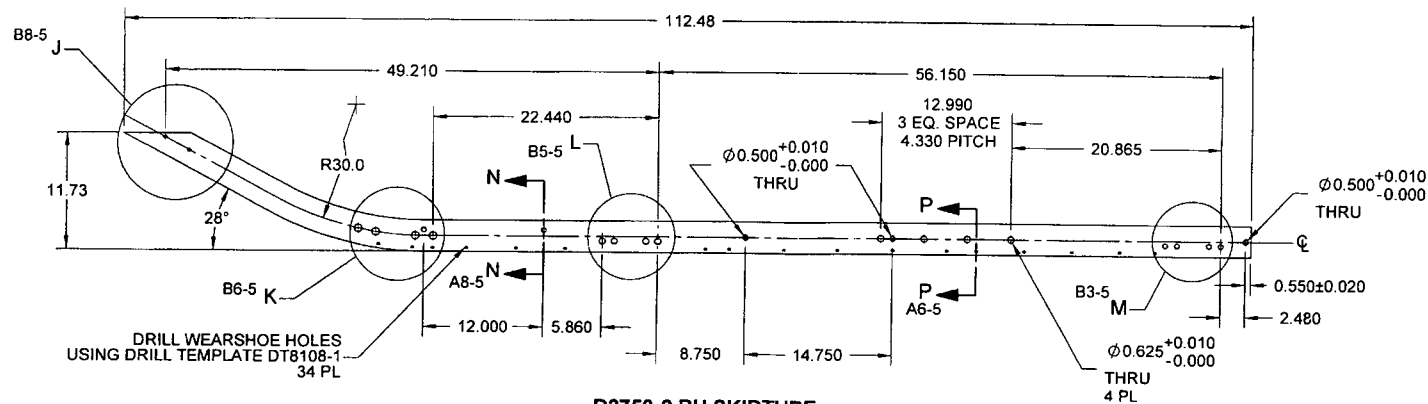
Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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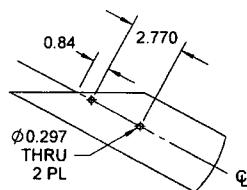
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

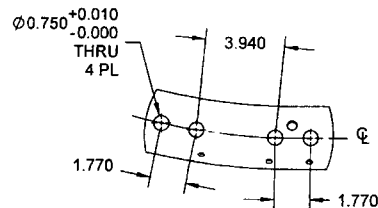




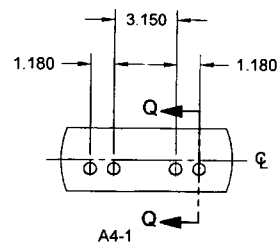
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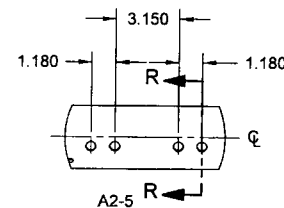
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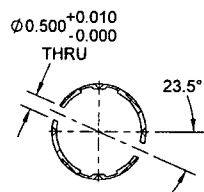
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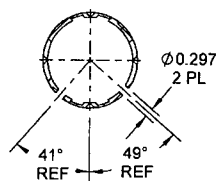
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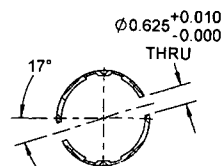
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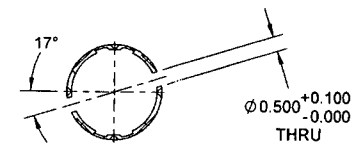
**SECTION N-N**  
SCALE 3X, 2 PL



**SECTION P-P**  
SCALE 3X, 17 PL



**SECTION Q-Q**  
SCALE 3X, 4 PL



**SECTION R-R**  
SCALE 3X, 4 PL

W658814

**RELEASED**

DESIGN	PL	<b>DART AEROSPACE USA, INC.</b>	
DRAWN	PL	PORT HADLOCK, WA	
CHECKED		DRAWING NO.	REV.
MFG. APPR.		D2750	SHEET 5 OF
APPROVED		TITLE	SCALE
DE APPR.		350 SKIDTUBE ASSEMBLY	NT
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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

8

7

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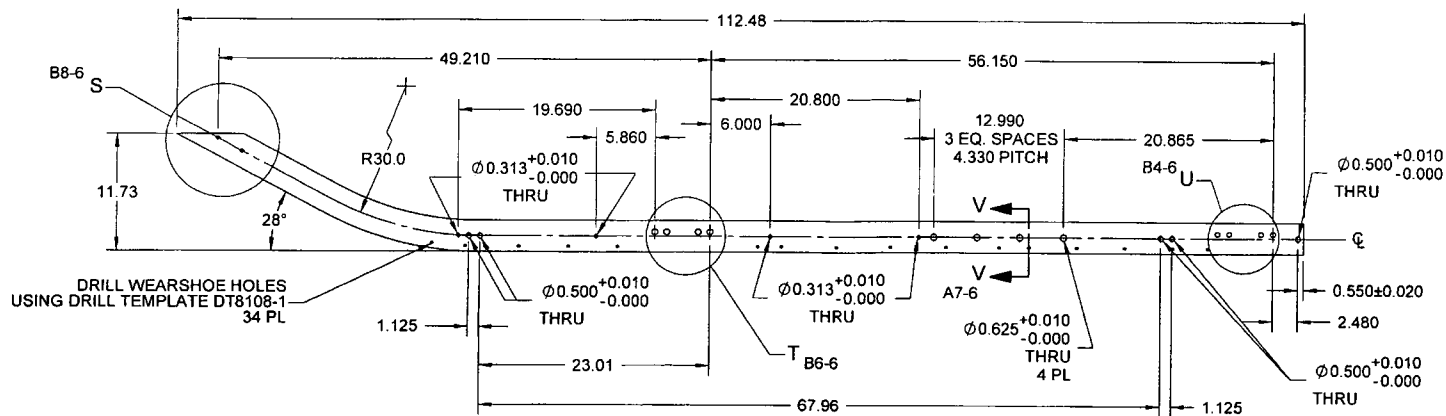
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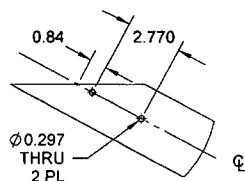
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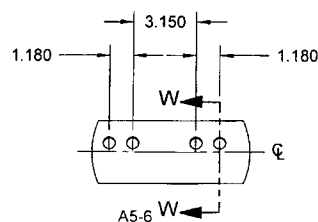
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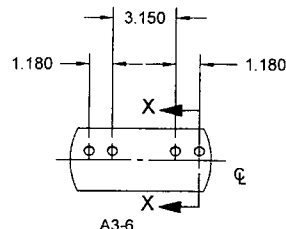
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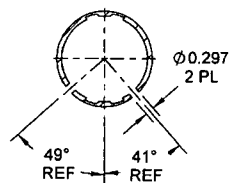
**DETAIL S**  
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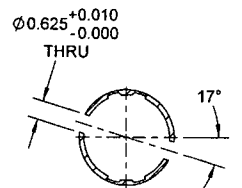
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SCALE 2X



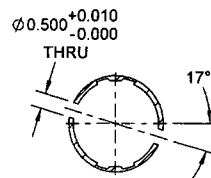
**DETAIL U**  
SCALE 2X



**SECTION V-V**  
SCALE 3X, 17 PL



**SECTION W-W**  
SCALE 3X, 4 PL



**SECTION X-X**  
SCALE 3X, 4 PL

**RELEASED**  
08-12-11

W/0 58816

DESIGN		<b>DART AEROSPACE USA, INC.</b>
DRAWN		PORT HADLOCK, WA
CHECKED		DRAWING NO. <b>D2750</b>
MFG. APPR.		REV. F
APPROVED		SHEET 6 OF 11
DE APPR.		TITLE <b>350 SKIDTUBE ASSEMBLY</b>
DATE	<b>08.07.16</b>	SCALE <b>NTS</b>

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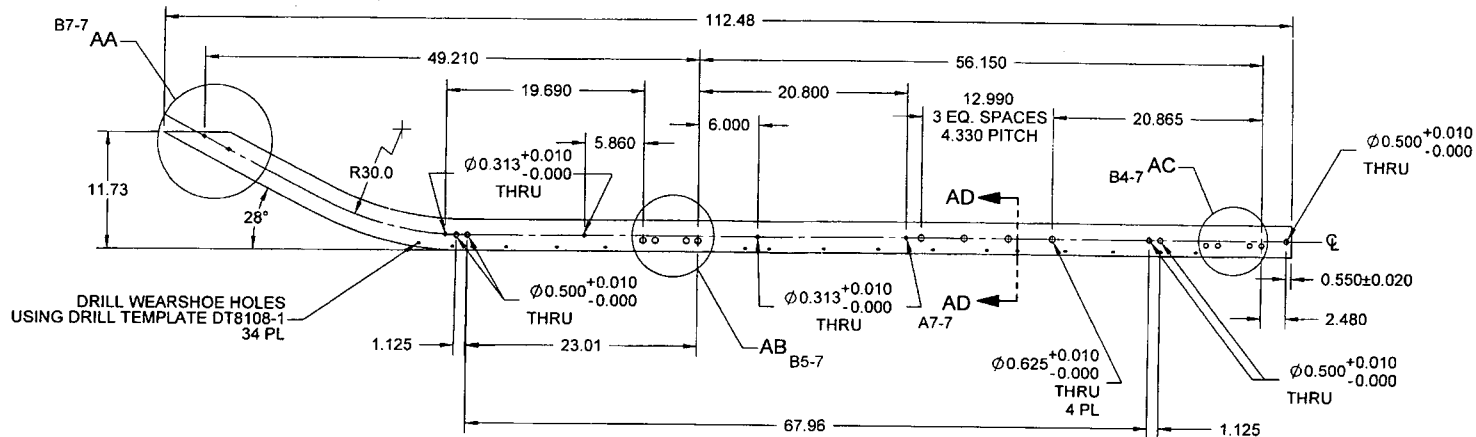
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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

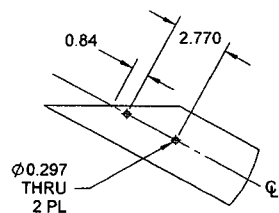
Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

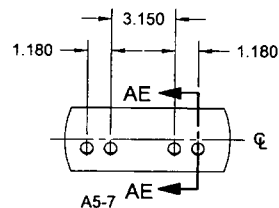
**NOTE:** Date & initial all entries



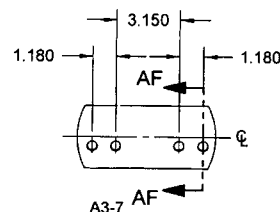
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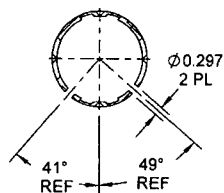
**DETAIL AA**  
SCALE 2X



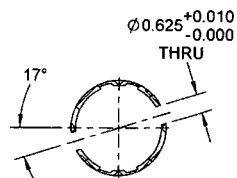
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SCALE 2X



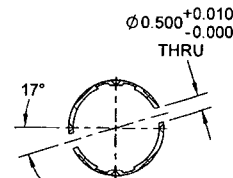
**DETAIL AC**  
SCALE 2X



**SECTION AD-AD**  
SCALE 3X, 17 PL



**SECTION AE-AE**  
SCALE 3X, 4 PL



**SECTION AF-AF**  
SCALE 3X, 4 PL

**RELEASED**

DESIGN	PA	<b>DART AEROSPACE USA, INC.</b>
DRAWN	PA	PORT HADLOCK, WA
CHECKED	PA	DRAWING NO. <b>D2750</b>
MFG. APPR.	PA	REV. F
APPROVED	PA	SHEET 7 OF 11
DE APPR.	PA	SCALE
DATE	08.07.16	<b>350 SKIDTUBE ASSEMBLY</b>
		NTS

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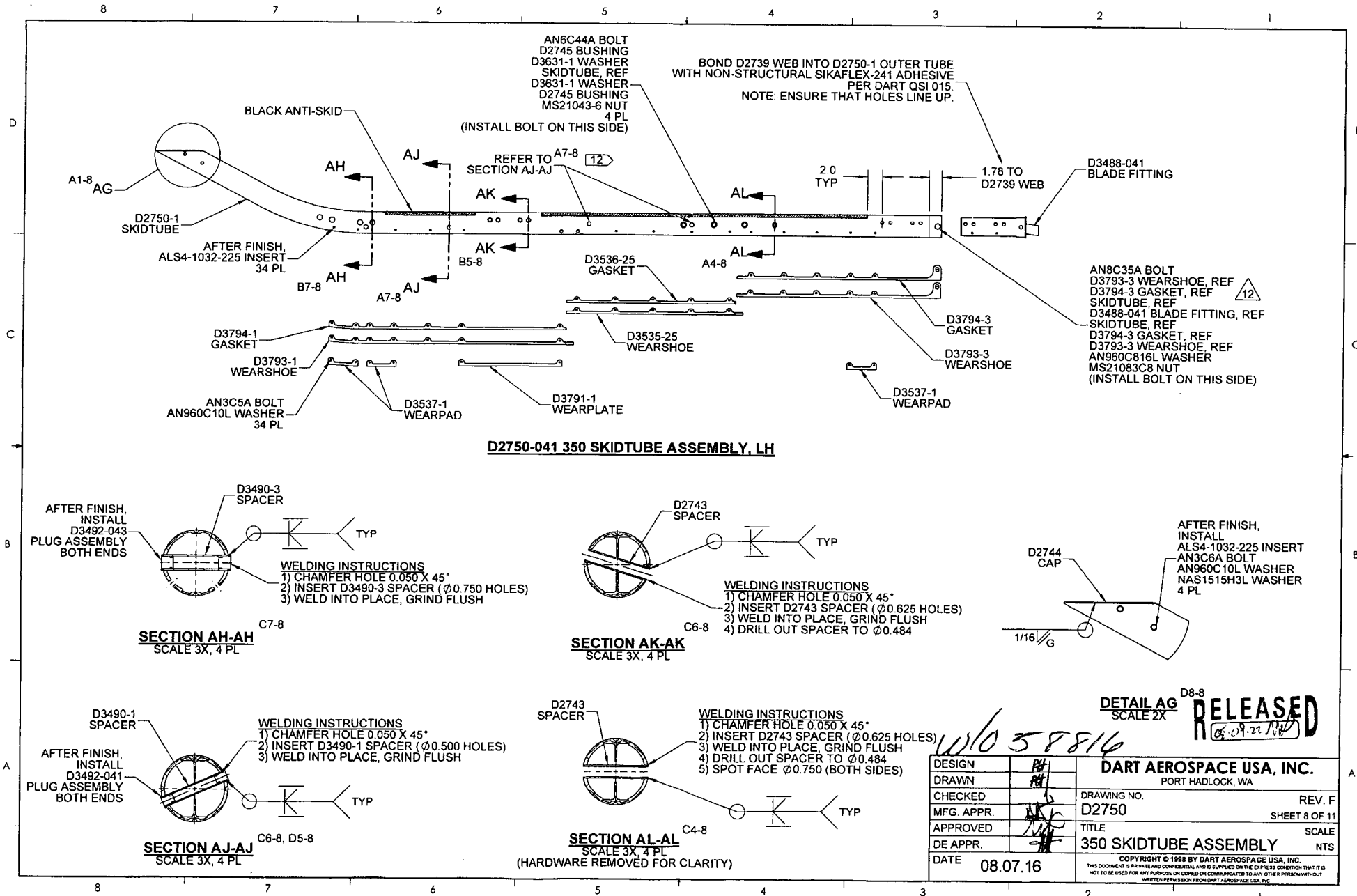
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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

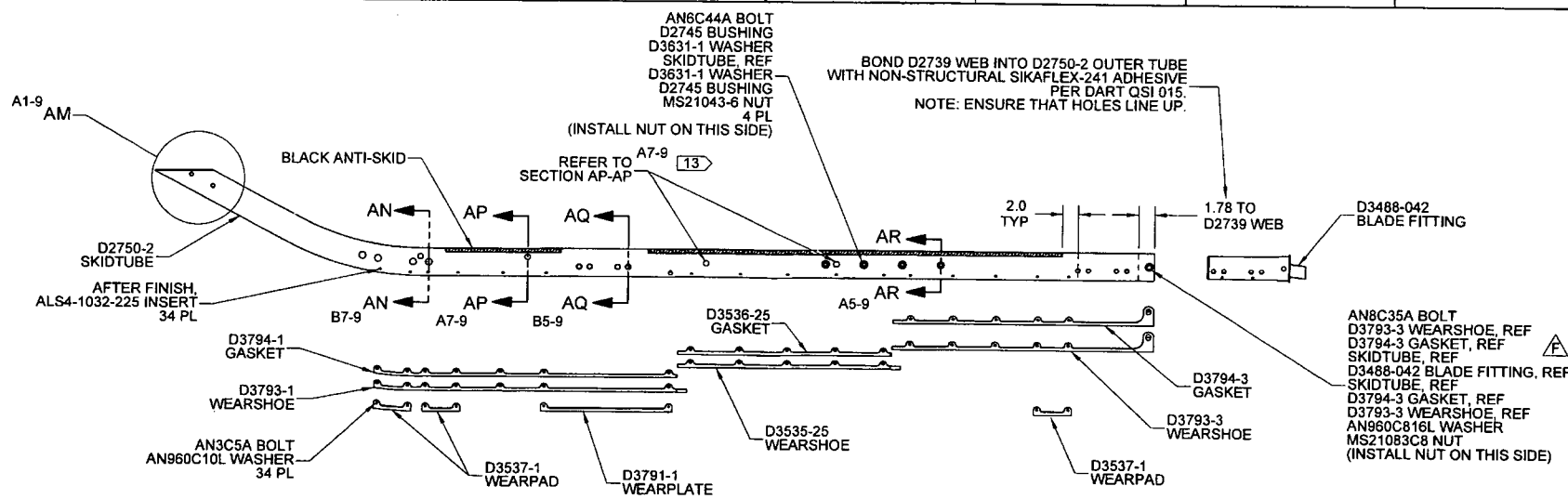
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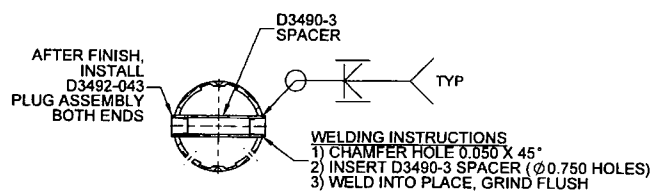
**NOTE:** Date & initial all entries



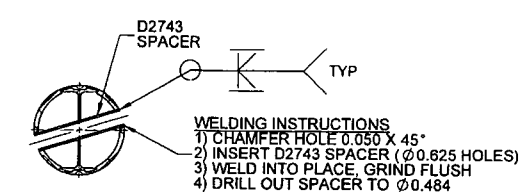
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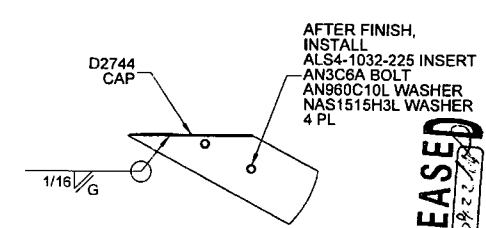
**D2750-042 350 SKIDTUBE ASSEMBLY, RH**



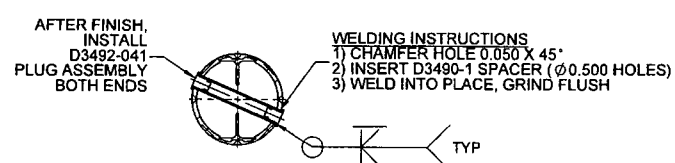
**SECTION AN-AN**  
SCALE 3X, 4 PL



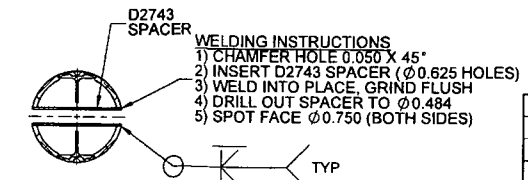
**SECTION AQ-AQ**  
SCALE 3X, 4 PL



**DETAIL AM**  
SCALE 2X



**SECTION AP-AP**  
SCALE 3X, 4 PL



**SECTION AR-AR**  
SCALE 3X, 4 PL  
(HARDWARE REMOVED FOR CLARITY)

DESIGN	W/D 58816	<b>DART AEROSPACE USA, INC.</b>	
DRAWN	W/D	PORT HADLOCK, WA	
CHECKED	W/D	DRAWING NO.	REV. F
MFG. APPR.	W/D	D2750	SHEET 9 OF 11
APPROVED	W/D	TITLE	SCALE
DE APPR.	W/D	350 SKIDTUBE ASSEMBLY	NTS
DATE	08.07.16	COPYRIGHT © 1998 BY DART AEROSPACE USA, INC.	
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08-09-2016

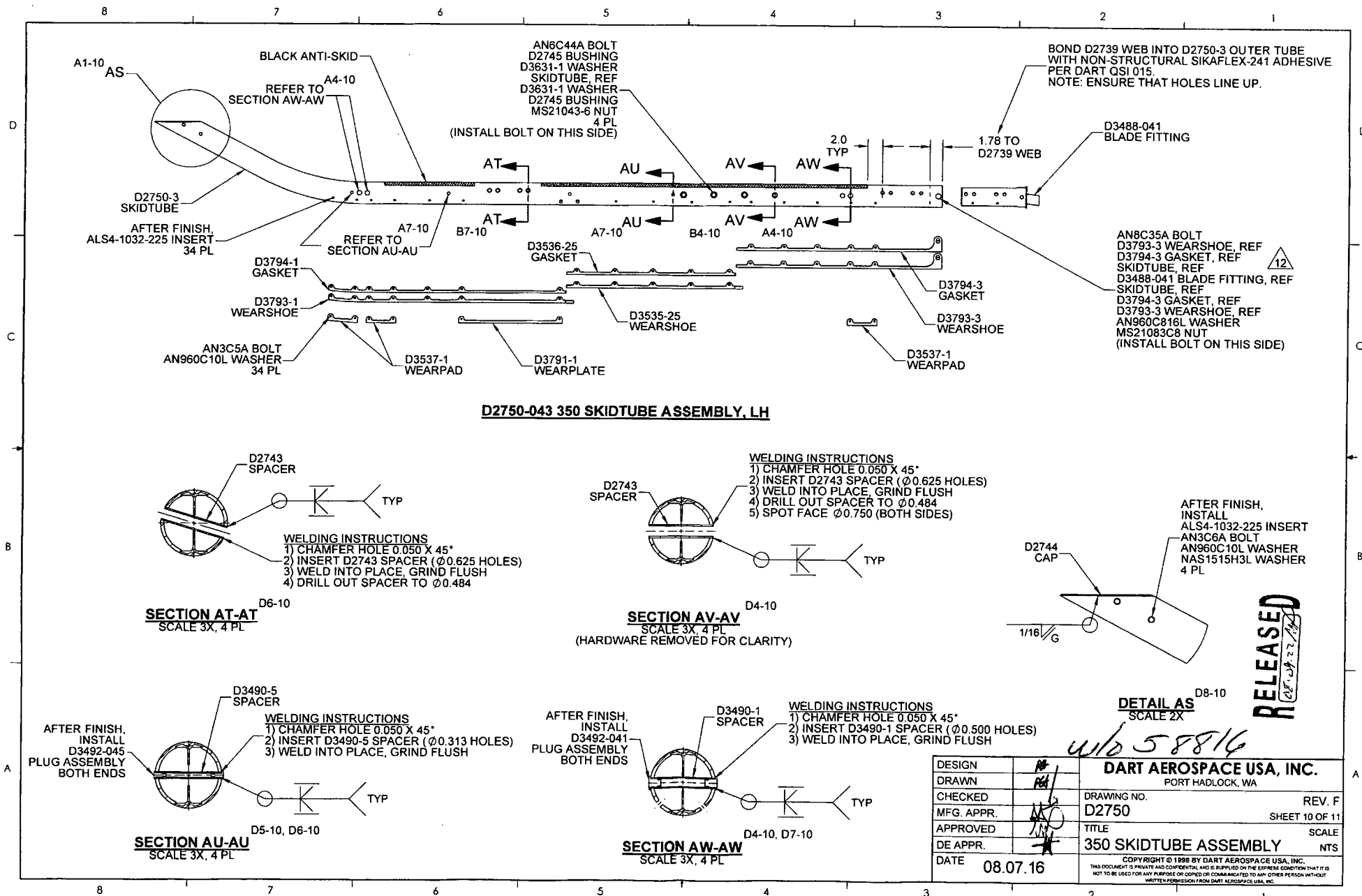
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



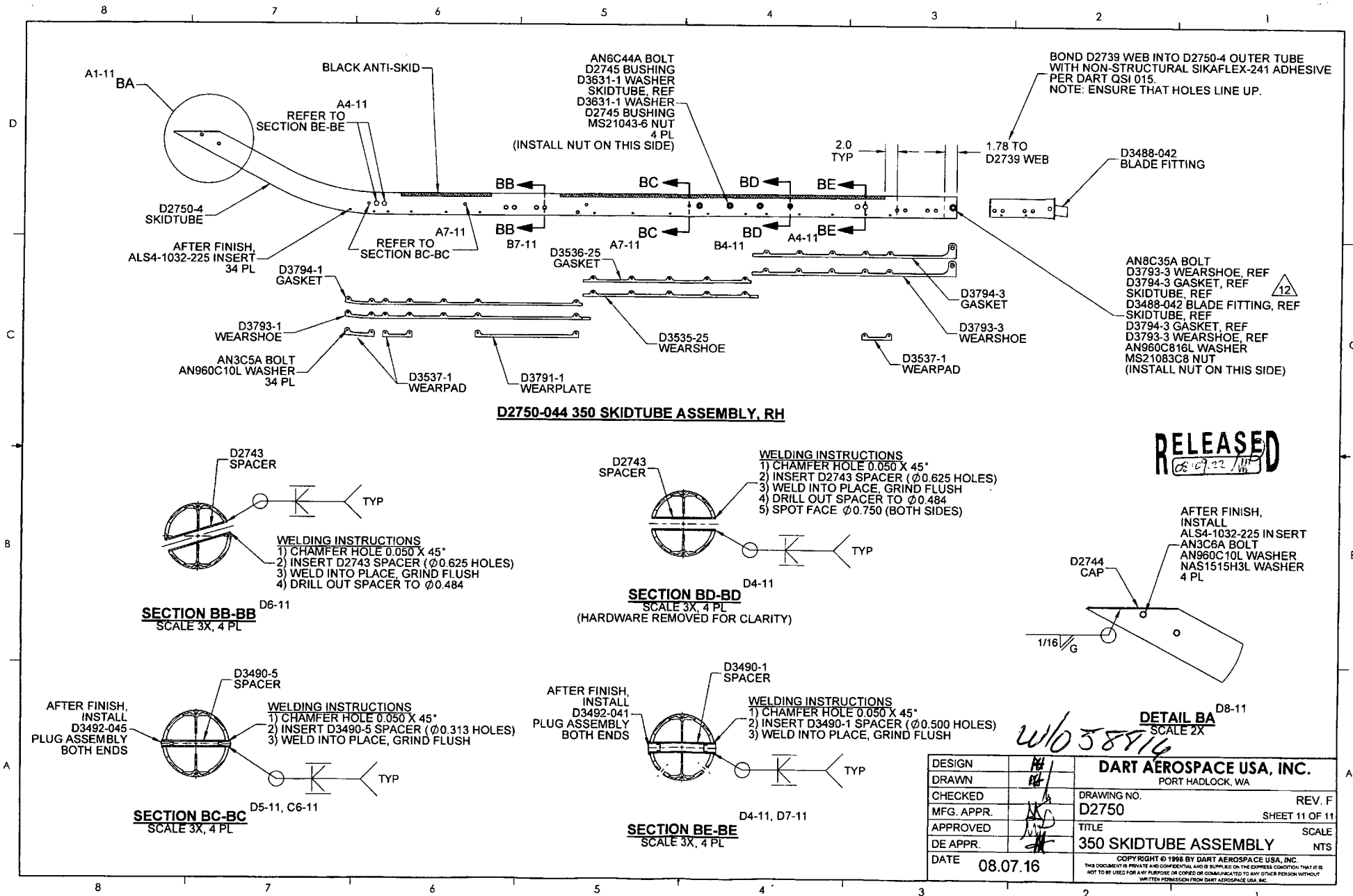
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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**NOTE:** Date & initial all entries



W/O:		WORK ORDER CHANGES					
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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

NO. 233

AWS D17.1.2001  
QUALIFICATION TEST RECORD

Name: Barday Elliott  
Job number: 58816  
Part number: D350-68604  
Description: 350 skid tube  
Welding Process: Tig[☒] Mig[ ]  
Base material: Aluminium  
Current: AC[☒] DC[ ]

TEST REQUIREMENTS AND RESULTS

Visual: pass[☒] fail[ ]  
Penetration: pass[☒] fail[ ]

UNACCEPTABLE

Cracks: pass[☒] fail[ ]  
Undercut: pass[☒] fail[ ]  
Pin holes: pass[☒] fail[ ]  
Overlap (cold lap): pass[☒] fail[ ]  
Porosity (surface): pass[☒] fail[ ]  
Coloration: pass[☒] fail[ ]

Qualifier Pat. Dunn Date of Test Coupon 10.06.01

Welder Barday Elliott Date of Test Coupon 10.06.01

The above named individual is qualified in accordance with AWS D17.1.2001 to weld